

mucronate tip fleshy, externally puberulous, translucent-white suffused with purple; lateral lobes 0.9-1.1 x 0.3-0.5 cm, elliptic-oblong, distinctly 3-nerved, spreading. Lateral staminodes petaloid 0.8-0.9 x 0.6-0.65 cm, obovate, obtuse, slightly and unequally bilobed, basal end with 2 reddish-purple secreting glands, base united to form a short spur. Lip *c.* 1.2 x 1.2 cm in diameter. When flattened, cupular, fleshy, orange-yellow with reddish-purple dots and streaks, the median vein thickened from base, and forms a blunt projection in front, deep orange in colour. Stamen 6-7 mm long, curved, anthers at right angles to it; Anther cell *c.* 4 x 2 cm long, oblong, contiguous, connective narrow, not produced. Style *c.* 2.1 cm long, slender, translucent-white, glabrous, passing through the furrow of anther or connective of anther. Stigma small, sub-globose. Ovary *c.* 3.5 mm long, ribbed, minutely hairy, with 2 stylodes *c.* 3.8 mm long crowning the ovary, 1-celled with many ovules, with parietal placentation.

Flowering: April

Altitudinal Zones: 300-500 m.

Distributional Status: Rare

Remarks: It grows on the burnt Sal forest floor.

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36. *ARISAEMA ECHINATUM* (WALL.) SCHOTT — AN ADDITION TO THE ARACEAE OF PENINSULAR INDIA

(With one text-figure)

While revising the genus *Arisaema* Mart for a study on the Araceae of India, it was found that the material of an *Arisaema* species at Madras Herbarium (MH), collected in the Silent Valley on the Western Ghats, Kerala, had been wrongly determined as *A. erubescens* (Wall.) Schott. Critical examination revealed that it is *A. echinatum* (Wall.) Schott. The identity was later confirmed with the help of the protologue and type. *Arisaema echinatum* is known to occur in Manipur, Meghalaya and Sikkim in India, and also in Bhutan, China and Nepal. It is recorded here from Kerala for peninsular India. A detailed description is provided.

Arisaema echinatum (Wall.) Schott in Schott & Endl., Melet. Bot. 1: 17. 1832; Hook. f., Fl. Brit. India 6: 506. 1893; Engl., Pflanzenr.

(IV. 23 F) 73: 181. 1920; D. Chatterjee in Bull. Bot. Soc. Bengal 8: 124. 1955; Hara, Fl. E. Himal. 2: 152, t. 20, f. c-d, 351, f. 55m. 1971; Pradhan, Himal. Cobra-lilies: 90. 1990. *Arum echinatum* Wall., Pl. Asiat. Rar. 2: 30, t. 136. 1831; Wall., Numer. List No.: 8916. 1848; Engl. in DC., Monogr. Phan. 2: 555. 1879. - Type: Nepal, Sheopore, 1821, Wall., Numer. List No. 8916 (CAL, K, MH microfiche!).

Dioecious, rarely monoecious, cormous herb; corm 2-5 cm across, depressed-subglobose. Cataphylls 1-2, 2.5-22 cm long, obtuse, membranous. Leaf solitary; petiole 12.5-46 cm long, cylindrical, pale green, streaked with reddish-brown, glaucous; leaflets 6-11, radiate, subsessile, 4.5-30 x 0.7-4 cm, oblanceolate to oblong-lanceolate, attenuate or subacute at the base,

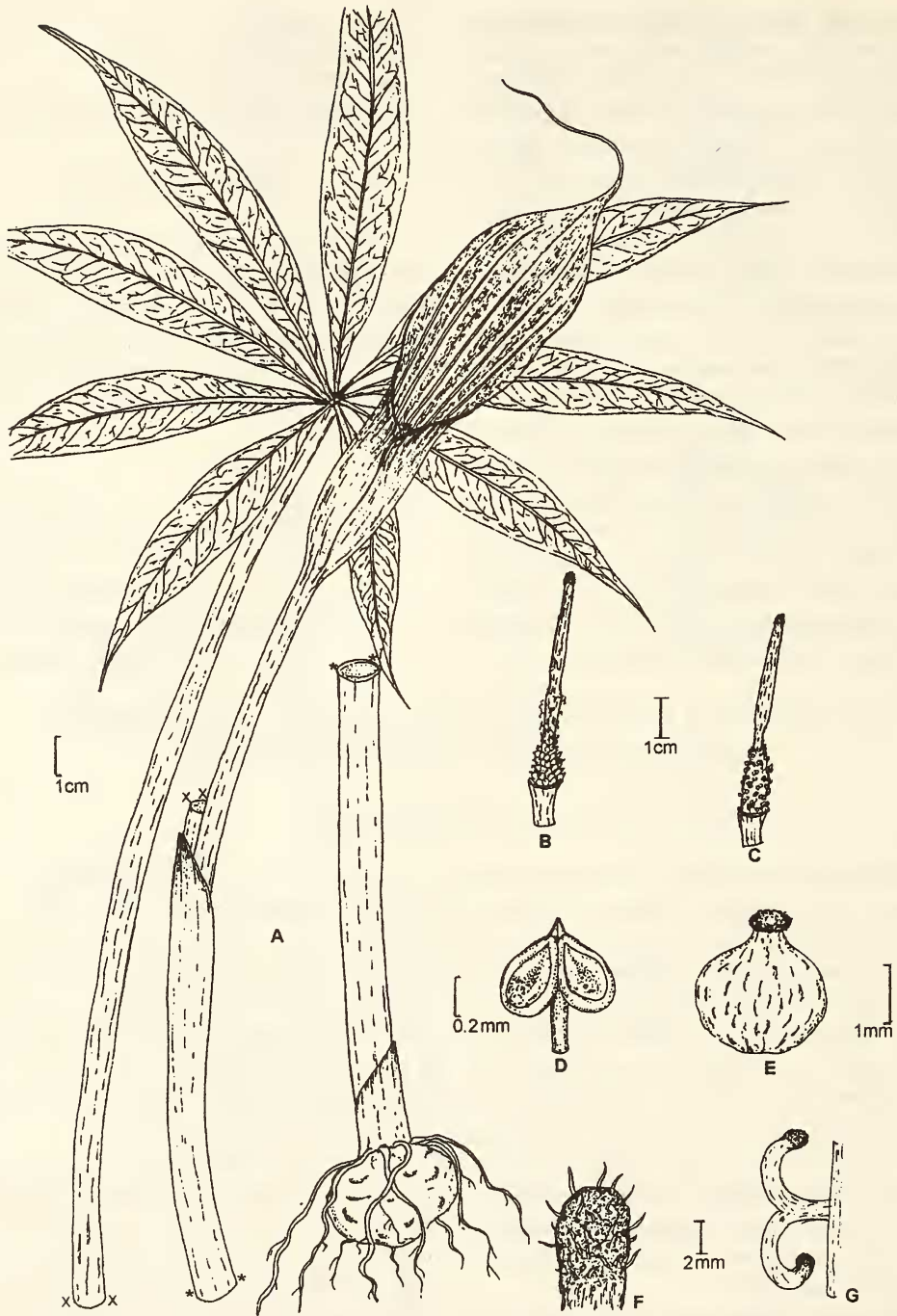


Fig. 1: *Arisaema echinatum* (Wall.) Schott: A. Habit; B. Bisexual spadix; C. Staminate spadix; D. Staminate flower; E. Pistillate flower; F. Apex of spadix-appendix; G. Sterile flower

undulate along the margins, caudate-acuminate at the apex, deep green above, pale green with streaks and glaucous beneath; midnerve broad at the base, narrowing towards the tip; lateral nerves slender, 10-14 on each side, obliquely ascending from midnerve, continuous to form intra-marginal nerves. Peduncle solitary, 7-35 cm long, green, streaked with reddish-brown, enclosed by the petiole and then exerted. Spathe 9.5-27 cm long, green, striped with white, brown or purple inside, dull white outside, glabrous; tube 3-6 x 1.5-2 cm, cylindrical, convolute, green-and-white striped outside, dark purple striped inside, spreading at the mouth; limb 3-7 x 2.5-5 cm, ovate-lanceolate, vaulted, abruptly tapering into a long slender pendulous 5-15 cm long tail. Spadix included, cylindrical, erect, hardly exerted beyond the mouth of the tube. Pistillate spadix 4-7.5 cm long; pistillate flower-portion 0.7-1.5 cm long, dense, with a few sterile flowers above (or none) along with a few staminate flowers; pistillate flowers many, 1.5-2 x 1.7-1.8 mm; ovary 1.5-1.7 x 1.5-1.8 mm, subglobose, green, streaked; ovules 2-3, basal; style minute; stigma discoid, white, viscid. Sterile flower-portion c. 1 cm long; sterile flowers 1-3.5 mm long, subulate, bifurcate, purple at the apex. Staminate spadix 4-6.5 cm long; staminate flower-portion 1.5-2 cm long; staminate flowers many, sparse; filament 0.1-0.5 mm long; anthers 1-5, 2-lobed, purplish brown, dehiscing by a pore; lobes 0.4-0.7 x 0.5-0.9 mm, globose or depressed-subglobose; connective beaked. Appendix 2.5-4.5 x 0.5-0.9 cm, cylindrical or slightly

compressed, light green, streaked with purple, swollen at the base, contracted in the middle, rugose or echinate with white bristle, 0.07-0.2 cm long, round margins crenate at the apex. Appendix of staminate spadix distinctly stipitate; stipe c. 0.5 cm long. Berries c. 0.6 cm long.

Fl. & Fr.: Feb.-July.

Note: Easily distinguished by its densely echinate spadix-appendix apex. Commonly called the spiny cobra-lily (Pradhan *l.c.*). Berries of *Arisaema* spp. are bird-dispersed (Ridley 1930). This species may have been dispersed by birds internally.

Specimen examined: Kerala: Palakkad district, Silent Valley R.F., 900 m, 22.iv.1980, *V.J. Nair* 67259 (CAL, MH). Manipur: Mao, 6,500 ft (1975.25 m), 11.ii.1954, *S.C. Sinha* 1873 (CAL). Meghalaya: Khasia hills, Dumpep, 30.v.1911, *H. Burkill & S.C. Banerjee* 34249 (CAL). Sikkim: North district, Tallam Samolong, 25.vii.1986, *D.C.S. Raju & S. Singh* 6124 (SHC).

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REFERENCE

RIDLEY, H.N. (1930): The dispersal of plants throughout the World. L. Reeve & Co. Ltd, Ashford, Kent. Pp. 396.

37. TWO NEW ADDITIONS TO THE SEDGES, FAMILY CYPERACEAE, OF ANDHRA PRADESH

(With one text-figure)

During an exploration on aquatic and the authors encountered two interesting taxa wetland angiosperm diversity in Andhra Pradesh, which, on critical examination, were identified